

SOCIAL RETURN ON INVESTMENT (SROI) ANALYSIS OF THE ELECTRIC MOTOR CONVERSION TRAINING PROGRAM IN NORTH LAMPUNG

Analisis Social Return on Investment (SROI) Program Pelatihan Konversi Motor Listrik di Lampung Utara

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Abstract

Converting conventional motors into electric vehicles can reduce dependence on fossil fuels. The conversion process involves engine replacement, charging system installation, and vehicle structure modification. The conversion program was carried out involving workshops and vocational high school students. The Social Return on Investment (SROI) method was employed to measure the social and economic impacts of the program, involving impact identification, measurement, monetization, cost comparison, and analysis. The PLN Cares program undertook motor conversion with the aim of improving sustainability and quality. The research problem and objectives focused on measuring the SROI in the electric motor conversion program. The research method employed a qualitative approach with data collection techniques through in-depth interviews, focus group discussions, observations, and literature studies. Data were continuously analyzed during and after collection. SROI calculations involved initial investment capital input and impact value, resulting in an SROI ratio of 5.03. The research results indicated that the PLN Cares program had a significant social impact, with an SROI ratio indicating a profitable investment value. Conclusions and recommendations involved maintaining the working mechanisms, synergy among stakeholders, and using the program as a guide for similar projects in the future.

Keywords: Social Return on Investment; electric motor conversion, training program, corporate social responsibility, electric vehicle

INTRODUCTION

Conventional motors using fossil fuels produce greenhouse gas emissions such as carbon dioxide (CO₂), contributing to global climate change (Rahmadania, 2022). In contrast, electric vehicles, with no direct emissions during operation, help reduce emissions and mitigate negative environmental impacts. Converting conventional motors into electric vehicles reduces dependence on non-renewable fossil fuels.

An electric motor is a device that converts electrical energy into mechanical energy to drive various types of machinery and equipment. Electric motors have become a crucial component in various applications, ranging from electric vehicles to industrial machines. However, in some cases, there is a need to convert fossil fuel-powered motors into electric motors. This conversion becomes more critical in efforts to reduce greenhouse gas emissions and adopt more environmentally friendly technologies. Several reasons underlie

electric motor conversion, such as energy efficiency (Miftachul Ulum *et al.*, 2021). Electric motors are generally more efficient than fossil fuel engines in converting energy into mechanical power. This means motor conversion can reduce energy consumption and operational costs, leading to a reduction in greenhouse gas emissions.

Replacing fossil fuel motors with electric motors can reduce greenhouse gas emissions and harmful air pollution, benefiting the environment. Another reason is better performance. The electric motor conversion process typically involves replacing fossil fuel engines with electric motors, installing a charging system, and integrating an appropriate control system. Additionally, modifications to the vehicle or equipment structure are required to accommodate different electric motor components (Wikarta, 2023).

In the program converting conventional motors to electric motors, training is also provided by workshops and several students from various vocational high schools (SMK) in North Lampung. Elders Garage workshop conducts the training, with participants from SMKN 3 Kotabumi, SMKN 1 Bukit Kemuning, SMKN 02 Kotabumi, and SMK Dinamika.

Social Return on Investment (SROI) is a framework or method used to measure the social and economic impact of a social program or project. SROI is designed to assess accountability and organizational value that may not always be easily quantifiable in monetary terms (Astuti, 2020). SROI assists organizations and stakeholders in evaluating the extent to which a specific program or project provides significant social value in relation to the investment made. This method attempts to measure and express social impact in monetary terms, enabling a comparison between investment value and the resulting impact. SROI incorporates the following elements: 1) Identification of social impact involves identifying the

impacts produced by the program or project, whether direct or indirect. 2) Impact measurement involves quantifying and qualifying these impacts using quantitative and qualitative data. 3) Monetization of impact involves converting social impacts into monetary values that can be calculated. 4) Cost comparison involves comparing the value of impacts with the investment costs incurred. 5) Comparative analysis involves analyzing whether the value of the impacts is greater than the investment costs, as well as evaluating the program's or project's efficiency and effectiveness (Suryani *et al.*, 2022).

Social Return on Investment (SROI) and Corporate Social Responsibility (CSR) are two closely related concepts in the context of corporate social responsibility. However, they have different approaches to measuring and managing the social impact generated by a company. In practice, companies often use CSR as a platform to create social impact, and SROI can be used to measure the extent to which these impacts successfully generate significant value. Therefore, SROI can be a valuable tool in measuring and managing the impact of corporate CSR initiatives in a more measurable and detailed manner. SROI includes efforts to measure the impact on beneficiaries, stakeholder perceptions, and intangible aspects of the program, such as the health benefits for program participants, increased knowledge, and so forth. External factors are measured, not just internal investor benefits alone (Santoso *et al.*, 2020).

As an initiative in implementing CSR programs with an economic perspective, the SROI ratio is already significant in producing social impact. The next crucial challenge for PT PLN and other stakeholders is maintaining the sustainability and quality of the PLN Cares Program. PLN is one of the companies that has long coexisted with the surrounding community, and PT PLN has the resources, especially in terms of funding and financial assistance for the local community.

Research Problem

Based on the identified problem, it can be formulated through the following questions: How is the Social Return on Investment (SROI) measurement ratio in the training program for converting conventional motors to electric motors conducted by Elders Garage workshop for workshop owners and students from various vocational high schools in North Lampung?

Research Objectives

To determine the ratio of Social Return on Investment (SROI) in the PLN Cares Program for the training program converting conventional motors to electric motors conducted by Elders Garage workshop for workshop owners and students from various vocational high schools in North Lampung.

Research Benefits

Theoretical Benefits

As additional insight from theories implemented in the PLN Cares Program for workshop owners and vocational high school students participating in the training.

Practical Benefits

The results of this research can serve as considerations for Social Entrepreneurs to assess the extent to which it has brought about changes in the community and serve as a reference for developing Social Entrepreneurship for continuous innovation.

RESEARCH METHODS

The object of this research is Elders Garage workshop, which provides training to workshop owners and students from various vocational high schools in North Lampung. The scope of this study is to measure the social impact generated by the

training program for converting conventional motors to electric motors conducted by Elders Garage workshop, involving workshop owners and vocational high school students in North Lampung. The focus is on activities aimed at improving understanding of innovation and values related to conventional motors.

The researcher employs a research method with a qualitative approach. This is because the researcher aims to gain a deeper understanding of the issues under investigation. Qualitative research examines participant perspectives using interactive and flexible strategies. Qualitative research is intended to comprehend social phenomena from the participants' standpoint. Therefore, the essence of qualitative research is a study used to investigate natural conditions where the researcher serves as a key instrument. The advantages of using qualitative methods include the ability to analyze and explain the background of individual actions in society, which is the goal of social science. The qualitative approach positions what is studied not only as an object but also simultaneously as a subject (Setiawan *et al.*, 2019).

Data Collection Technique

Several data collection techniques were employed in the impact measurement process resulting from the implementation of the PLN Cares Program for the training program converting conventional motors to electric motors at workshops and vocational high school students in Kotabumi District, North Lampung Regency. These techniques include: 1) Conducting in-depth interviews to gather data from stakeholders involved in the implementation of the PLN Cares Program at workshops and vocational high school students in Kotabumi District, North Lampung Regency. 2) Organizing focus group discussions (FGD) involving the CSR team of PT PLN as the program initiator, workshop owners, and vocational

high school students in Kotabumi District, North Lampung Regency. 3) Observing the dynamics of groups, production tools, and the products produced. 4) Employing literature study techniques on various secondary data and documentation held by PT PLN, as well as workshop owners and vocational high school students in Kotabumi District, North Lampung Regency, related to the training program for converting conventional motors to electric motors. Additionally, reviewing other relevant literature supporting the SROI method. 5) Conducting documentation studies on various documents related to the PLN Cares Program for workshop owners and vocational high school students in Kotabumi District, North Lampung Regency.

The instruments used in the field data collection process are interview guidelines. The impact measurement process resulting from the implementation of the PLN Cares Program at workshops and vocational high school students in Kotabumi District, North Lampung Regency, is carried out by the CSR team of PT PLN without intervention from other parties. This is crucially stated from the beginning to assess the program's design feasibility, implementation, and the perceived impact on the community. Based on the data collection process in the field using in-depth interviews and focus group discussions with informants consisting of the CSR team of PT PLN, local government representatives, workshop owners, and vocational high school students in Kotabumi District, North Lampung Regency, it was found that stakeholders involved in the implementation of the PLN Cares Program at workshops and vocational high school students in Kotabumi District, North Lampung Regency.

Data validation is conducted through triangulation, using source triangulation and method triangulation to minimize data bias. The collected data is then processed

and analyzed through several stages, starting from reviewing field notes, transcribing interviews, data reduction, data categorization, classification, and data display. Data analysis is conducted in two stages: during the data collection process and after the data collection process is completed.

1. Data Analysis During Data Collection:

This refers to the data analysis process carried out by the researcher during the data collection process. It involves the thinking process conducted by the researcher while gathering and exploring data in the field related to the already obtained data. The researcher engages in probing (data exploration) with informants and develops strategies to collect additional data that may not have been acquired.

2. Data Analysis After Data Collection: In this stage, the researcher analyzes all the data obtained. The researcher is more involved in the presentation or display of the collected and previously analyzed data. At this stage, the researcher often compiles narrative texts. Data display involves presenting information systematically to relevant stakeholders.

Based on the results of data processing and analysis, the Social Return on Investment (SROI) is then calculated using the formula proposed by Scholten P., Nicholls, J., Olsen S., & Galimidi, B. (2006), as follows:

$$NPV = (\text{Present value of benefits}) - (\text{Value of investments})$$

$$SROI \text{ Ratio} = \frac{\text{Present Value}}{\text{Value of Input}}$$

Net Present Value of Benefits refers to the total outcomes from three aspects: social, economic, and environmental, generated by a program. It represents the overall positive impact derived from the program.

Net Present Value of Investment refers to the total inputs expended to

implement a program. Inputs in this context encompass not only financial investments but also the time and resources

expended during the program's execution. (Purwohedi & Gurd, 2019).



Figure 1. Research Procedure Flow
Source: Figure by Author

RESULTS AND DISCUSSION

Elders Garage has become one of the conversion workshops of choice, particularly for Vespa owners. However, before transitioning into an electric motor conversion workshop, Elders initially focused on building custom motorcycles. The conversion from conventional engines to electric motors is one way to accelerate the electrification of motor vehicles in Indonesia. Beyond opting for new electric motorcycles, there is another option for motorcycle riders who want to experience electric vehicles – converting conventional motorcycles into electric ones. Motorcycle workshops are considered a timeless business opportunity, especially with the growing trend of custom motorcycle workshops like Elders Garage.

Elders Garage is a workshop that has crafted custom motorcycles, including one for President Joko Widodo (Jokowi).

However, before specializing in custom builds, Elders' story began as a small tire repair shop on the roadside. The CEO of Elders Garage is Heret Frasthio, and the workshop has been in operation since 2013. With a decade of experience, it has evolved into one of the government-verified motor conversion workshops. Elders Garage started venturing into converting gasoline-powered motorcycles into electric ones in 2021.

Given its background as a nationally verified workshop for converting conventional engines into electric ones and being an innovation that enhances value, PT. PLN (the state electricity company) launched a Corporate Social Responsibility program, namely the training program for converting conventional engines into electric motors. The program targets workshop owners and vocational high school students in North Lampung Regency.

Table 1: List of Training Participants for Converting Conventional Motorcycles to Electric Motorcycles)

Name	Status	Institution
Roni	Speaker	Elders Garage (Smesco Indonesia Ug, Jl. Gatot Subroto No. 94, Rt.11/Rw.3, Pancoran, South Jakarta City
Felix Sry Eddy Haspriadi	Teacher	Dynamics Vocational School
Ahmad Yani	Teacher	(Jl. Yos Sudarso Jl. Raya Prokimal
Muhammad Rizki	Student	No. 62, Madukoro, North Kotabumi
Moh. Pedro Ogawa	Student	District, North Lampung Regency)
M. Yusuf Sayfudin	Student	
Hariyadi	Technician	Vespa Clinic Kotabumi
Riki Andika	Technician	
Ardy Hidayat	Technician	

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Name	Status	Institution
		(Jl. Bunga Mayang No. 180, Sribasuki, Kotabumi District, North Lampung Regency)
Agus Sutrisna	Technician	Anugrah Motor Kotabumi
Agus Supriyono	Technician	(Jl. Veteran, Kota Alam, Kec. Kotabumi Sel., North Lampung Regency
Indra Adi Prayoga	Technician	
Sugito	Teacher	Kotabumi 2nd Vocational School
Bagus Setyadi Ali, St	Teacher	(Jl. Plongkowati Jl. Raya Prokimal, Madukoro Baru, North Kotabumi District. North Lampung Regency
Alfito Firdaus	Student	
Gestha Nirwansyah	Student	
Alpandi Saputra	Student	
Sulisno, S.Pd., M.M	Teacher	Kotabumi 3rd Vocational School
Bagus Purlita Pujakesuma, S.Pd., M.M	Teacher	(Jl. Perumnas Tulung Mili Indah Kotabumi Ilir Kotabumi, Rejosari North Lampung Regency
Wiyono Susilo, S.Pd.T	Teacher	
Muhammad Danilo	Student	
Ulum Bahrudin	Student	
Marsudi, S.Pd	Teacher	
Ahmad Zaidan Zidnaffa	Student	
Walid Naufal Hanif	Student	
Aldi Eko Purnama	Student	SMKN 1 Bukit Kemuning
Pran Aditama	Student	(Jl. Raya Baturaja, Muara Aman, Bukit Kemuning District, North Lampung Regency)
A. Irham Sobari	Student	
Aditya Vega Mahardika	Student	
Pikriyadi, S.T	Teacher	

Source: Table by Author

Table 2. Input Calculation

No	Input	Amount (Rp)	Total
1	Molis Conversion Machine	Rp. 138.250.000	Rp. 138.250.000
2	Training	Rp. 45.264.983	Rp. 45.264.983
	Total		Rp. 183.514.983

Table 3. Impact Calculation

No	Impact	Approach Calculation	Value (Rp)
1	Electricity Usage	Average amount kwh usage monthly	Rp. 434.153
2	Potential Increase in Income Workshop	Amount income sale	Rp. 90.000.000
3	Entrepreneurial Potential	Amount income motorbike entrepreneur electricity	Rp. 6.000.000

No	Impact	Approach Calculation	Value (Rp)
	Amount motorbike reservation electricity		Rp. 15.000.000
	Potency income per year		Rp. 90.434.153
	Potency income 5 Years		Rp. 452.170.765

Source: Table by Author

Table 4. SROI of Total Input Value and Program Impact

Initial investment capital input value	Rp. 300.039.283,00
Impact value	Rp. 1.509.520.000,00
SROI ratio (impact/input)	5,03

Source: Table by Author

From the above calculations, it is gathered that the impact generated by the PLN Cares program, specifically the PLN Cares Training Program for the Conversion of Conventional Motors to Electric Motors conducted by Elders Garage workshop for workshop owners and students from various vocational high schools (SMK) in North Lampung Regency, has the potential to become a sustainable program, aligning with the general goal of community empowerment programs. Based on the Social Return on Investment (SROI) of 5.03:1, the program yields a change impact of 5.03 times greater than the initial capital invested. In monetary terms, every IDR 1 invested in the PLN Cares program generates a social impact of IDR 5.03.

The impact generated by this electric motor conversion program is quite significant. Monetization results indicate an increase in income value, signifying that both workshop owners and students themselves feel the impact. Looking ahead, there is potential for this impact to be felt by individuals or the community as a whole. Therefore, improvements are needed to advance the program and achieve greater impact.

CONCLUSION

Based on the conducted research, it can be concluded that the magnitude of the impact generated by the PLN Cares program is 5.03:1, meaning that every IDR 1 invested in the PLN Cares Training Program for the Conversion of Conventional Motors to Electric Motors, conducted by Elders Garage workshop for workshop owners and students from various vocational high schools (SMK) in North Lampung Regency, results in a social impact of IDR 5.03 according to the Social Return on Investment (SROI) calculation. This figure indicates that the PLN Cares program is worthwhile as the return on investment exceeds the value of five. It suggests that the program is hitting its target accurately. However, the impact generated is not yet significant, emphasizing the need for improvements to advance the program and achieve even greater impact.

It is hoped that workshop owners and students from various vocational high schools (SMK) in North Lampung Regency can maintain and enhance the implemented working mechanisms. This way, it can consistently create social value for members and the community on a

larger scale.

The government and PT PLN are expected to use the synergy formed at Elders Garage workshop, as well as with workshop owners and students from various SMKs in North Lampung Regency, as a guide in implementing future programs or projects. The business conducted is anticipated not only to provide financial benefits but also to generate significant social benefits for farmers and the community.

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